START

9513335.1282 0040527 011434

MAR - 1 1995

Mr. Steve M. Alexander
Perimeter Areas Section Manager
Nuclear Waste Program
State of Washington
Department of Ecology
1315 W. 4th Avenue
Kennewick, Washington 99336-6018

Mr. Douglas R. Sherwood
Hanford Project Manager
U.S. Environmental Protection Agency
712 Swift Boulevard, Suite 5
Richland, Washington 99352

Dear Messrs. Alexander and Sherwood:

SUBMITTAL OF STATEMENT OF WORK (BHI-00156, REV. 00), PRELIMINARY DETERMINATION OF CHROMIUM CONCENTRATION WITHIN PORE WATER AND EMBRYONIC SALMON AT HANFORD REACH SPAWNING AREA IN PROXIMITY TO 100-HR-3 OPERABLE UNIT

Enclosed is the revised subject statement of work that incorporates comments from the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the State of Washington Department of Ecology. Also enclosed are the revised Hanford Job Hazard Analysis Checklist and the Scientific Collection Permit issued by the Washington State Department of Fish and Wildlife.

Should you have any comments concerning this subject matter, or require additional copies of the enclosures, please contact Mr. Randy Brich on 376-9031, or Mr. Michael Thompson on 373-0750.

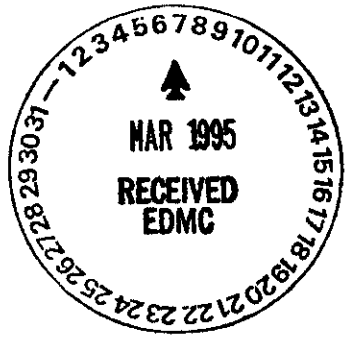
Sincerely,

for Julie K. Erickson, Director
River Sites Restoration Division

RSD:RFB

Enclosure

cc w/o encl:
D. P. Holland, Ecology
J. W. Yokel, Ecology
L. E. Gadbois, EPA



State of Washington

DEPARTMENT OF FISH AND WILDLIFE

Mailing Address: 600 Capitol Way N, Olympia, WA 98501-1091 - (206) 902-2200; TDD (206) 902-2207
Main Office Location: Natural Resources Building, 1111 Washington Street SE, Olympia, WA

SCIENTIFIC COLLECTION PERMIT

PERMIT NO. 95-14

This permit is issued to **Steve Hope, CH_2M Hill, Post Office Box 1510, Richland, Washington 99352-1510,** and fulfills the requirements of RCW 75.08.274. Additional persons authorized to use this permit are: **Matthew Galbraith and Roger Ovink.**

This permit authorizes the permittee to collect food fish and shellfish for scientific purposes in the waters of the state of Washington, subject to the provisions of this permit and applicable laws and rules. A copy of this permit shall be at the collection site while collecting specimens.

1. This permit is valid through March 31, 1995.

   THIS PERMIT MAY BE REVOKED OR MODIFIED AT THE DISCRETION OF THE DIRECTOR OR THE DIRECTOR'S DESIGNEE. FAILURE TO COMPLY WITH THE PROVISIONS OF THIS PERMIT IS A GROSS MISDEMEANOR (WAC 220-20-045) AND WILL RESULT IN THE REVOCATION OF THIS PERMIT.

2. This permittee shall notify Fish and Wildlife Enforcement Office at 360-902-2926 at least 24 hours prior to any collection.

3. The permittee may collect specimens for the purpose of **performing chromium content analysis on fall chinook eggs.**

4. The permittee may collect specimens only from the following waters: **Hanford Reach, Columbia River.**

5. The permittee may use only the following types of equipment to collect specimens: **Surber sampler and plastic/glass containers.**

6. The following species and quantity limitations apply to collections under this permit: **For each of no more than 25 redds (maximum of 20 redds adjacent to Locke Island and five (5) redds at Vernita Bar), a maximum of 225 fall chinook salmon eggs per redd.**

7. The permittee shall submit the indicated report(s) to Washington Department Fish and Wildlife:

   (**X**) A collection report indicating the numbers of each species of food fish and shellfish retained, the location of their capture, and the disposition of these specimens. This report shall be submitted by January 31, 1996.

   (**X**) A final project report detailing the objectives of the investigation, the study methods, a data summary and the conclusions derived from the study.

8. The following special conditions apply to this permit: **None.**

9. The following general provisions apply to this permit:

   a. Specimens collected under this permit shall not be used for commercial purposes or human consumption. All food fish and shellfish collected under this permit shall be released alive except as provided in Item 6 of this permit.

   b. This permit does not authorize collection from the Marine Biological Preserve (all of San Juan County), nor does it authorize collection of marine plants, classified game fish, game animals, or any unclassified fish and wildlife species.

   c. This permit does not authorize trespassing on private or restricted public lands.

   d. Washington Department of Fish and Wildlife employees have the right to inspect the collection activities authorized by this permit.

   e. Unattended equipment shall be legibly marked with the identity of the permittee and the number of the permit.

   f. Vessels engaged in collection activities shall display a sign "RESEARCH," readable at 100 yards to unaided vision.

CORRESPONDENCE REGARDING SCIENTIFIC COLLECTION PERMITS SHOULD BE DIRECTED TO THE DEPARTMENT, ATTENTION: SCIENTIFIC COLLECTION PERMIT.

Bill Taylor for

Robert Turner, Director
WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

cc: Bill Taylor
Enforcement

State of Washington
DEPARTMENT OF FISH AND WILDLIFE
Mailing Address: 600 Capitol Way N, Olympia, WA 98501-1091 - (206) 902-2200; TDD (206) 902-2207
Main Office Location: Natural Resources Building, 1111 Washington Street SE, Olympia, WA

February 7, 1995

Mr. Steve Hope
CH_2M Hill
Post Office Box 1510
Richland, Washington 99352-1510

Dear Mr. Hope:

Per your request, Scientific Collection Permit No. 95-14 is amended to allow collection of fall chinook alevin and/or fry. No more than 100 alevin and/or fry are to be collected from any sample site.

Please attach this amendment to your copy of the permit and keep both at the site of any collection activity.

Sincerely,

Bill Taylor

Bill Taylor
Research Analyst
Fish Management Program
Anadromous Fish Division

BT:cd

cc: Enforcement

9513535.1286 011434

HANFORD JOB HAZARD ANALYSIS CHECKLIST

Page 1 of St

Prepared By: Stephen J. Hope/CH2M Hill - ERC | Date: 1/25/95 | Area: 3000 | Bldg.: 3050C

Scope/Description: OSHA - 29 CFR 1910 Subpart T Commercial Diving Operations for Columbia River Field Investigations at 100-HR-3 OU/Vernita Bar

☐ New ☒ Revised

Emergency Contact Person(s):

Primary: See Attachment C

Secondary:

Emergency Radio/Phone Number:

JHA Number (not required):

Specific Work Location(s): Adjacent to riverbanks at 100-HR-3 OU and Vernita Bar

KNOWN OR POTENTIAL HAZARDS

	Yes	No	✓	•	Reference		Yes	No	✓	•	Reference
1. Radiation Area Work		X	✓	•		10. Respiratory Hazards	X		✓		diver cert.
2. Hazardous Waste Operations		X	✓	•		11. Electrical Hazards		X	✓		
3. Confined Space Entry		X	✓	•		12. Lock and Tag		X	✓	•	
4. Cutting/Welding		X		•		13. Scaffolding		X			
5. Roof Work		X				14. Aerial Lifts		X	✓		
6. Fall Hazards (> = 10')		X				15. Asbestos Removal		X	✓	•	
7. Excavation/Trenching		X		•	F&W Permit	16. Other (see JHA Sht. 2):	X				Attach. C
8. Asbestos Inspection Report		X		•		✓ = Formal training required.					
9. Hazardous Materials		X	✓			• = Items than require a permit/form/report.					

Other Hazards	Yes	No	Control Measures
1. Temperature Extremes	X		Insulated drysuits
2. Noise		X	
3. Poor Lighting	X		Will use underwater flashlights
4. Animals/Insects		X	
5. Process Chemicals/Steam		X	
6. Dust		X	
7. Flammable/Combustible Materials		X	
8. Ladders		X	
9. Wet/Slippery Floors	X		Wet & slippery ground conditions - be careful
10. Uneven Terrain	X		Be careful. watch footing
11. Open Excavations/Trenches		X	
12. Adjacent Water Hazard	X		See Attachment A (Subpart: T 1910.421(d))
13. Vehicle Traffic	X		Proj. support vehicles to follow/park near "diver down buoy
14. Heavy Equipment		X	
15. Rigging Operation		X	
16. Manual Lifting		X	
17. Power Tools		X	
18. Pinch Points		X	
19. Falling Objects		X	
20. Sharp Objects		X	
21. Overhead Obstructions		X	
22. Site Control (Signs/Barricades)	X		Identified with "diver down buoy"
23. Remote Work Area	X		Cellular phones avail.. proper notice made prior to start
24. Other (see JHA Sht. 2):		X	

MINIMUM DRESS REQUIREMENTS: Drysuit with insulated undergarments

APPROVALS

Does further evaluation of the job steps, associated hazards, or safety measures need to be performed? ☒ Yes ☐ No

If Yes, continue job hazard analysis on the following pages.

Supervisor, Person in Charge (Signature): Stephen J. Hope

Industrial Safety/Hygiene (Signature): John W. Kuntz

Attachment A

HANFORD JOB HAZARD ANALYSIS

SUBPART:T 1910.421 (d)

(d) Planning and Assessment. Planning of a diving operation shall include an assessment of the safety and health aspects of the following:

SUBPART:T 1910.421 (d)(1)

(1) Diving Mode:

Dive operations will be conducted from the riverbanks of the 100-HR-3 OU and Vernita Bar using SCUBA (Self Contained Underwater Breathing Apparatus) mode. A normal nitrogen-oxygen air mixture will be used. A dive flag will be in position over the divers to indicate their position within the study areas. The divers will be on a dive sled with a Lexan bubble-shield to divert the flow energy above and below the divers. The dive sled, which will serve as an underwater work platform, will be attached to an anchored tow-boat with a 100 to 150 foot nylon towline. The divers will have underwater voice communication equipment that will enable them to have diver to diver, and divers to boat communication.

SUBPART:T 1910.421 (d)(2)

(2) Surface and underwater conditions and hazards:

Surface conditions and hazards should be minimal with H&S personnel keeping watch for recreational boat traffic and large floating debris (i.e., tree stumps, logs, etc.), if any. The dives will not be conducted during inclement weather (i.e., fog, high winds, dark overcast) that could impede visibility or threaten diver safety.

Underwater conditions and hazards within the study areas appear to be minimal. Observations of the river bottom do not indicate the presence of structures or debris fields that could entangle divers. For the most part, the divers will be stationary at the sample sites. Dive sled/boat movements will be slow controlled upstream movements to a transect or lateral movements within a transect.

SUBPART:T 1910.421 (d)(3)

(3) Breathing gas supply:

Compressed air cylinders (SCUBA tanks) charged to about 3,000 psi will be used for the air supply. Each diver will have a pressure gauge to monitor air pressure. The divers will change tanks when the air pressure reaches 300 psi. The SCUBA tanks will meet the current quality standards specified by the *Compressed Gas Association* for Grade E gaseous air. The diving air compressor is tested in accordance with state and federal requirements to ensure satisfactory air quality. The tanks and air supply will be provided by the UnderSea Adventures Dive shop

in Kennewick, WA.

SUBPART:T 1910.421 (d)(4)

(4) Thermal protection:

Each diver will wear drysuits (including hood and gloves) with insulated undergarments to protect them from the affects of cold water. A heated vehicle (4WD truck) will be nearby the dive site for the divers to warm up during rest periods.

SUBPART:T 1910.421 (d)(5)

(5) Diving equipment and systems:

The following equipment and systems will be utilized:

- drysuits with insulated undergarments
- SCUBA tanks with hose arrays to provide air to drysuit shell, buoyancy compensator, 2 on-demand air supply regulators, and pressure gauge
- buoyancy compensator (BC)
- weight belt (30 to 45 pounds)
- mask with hardwire communication (diver to diver, divers to boat)
- fins, snorkel
- knife
- emergency whistle
- depth gauge
- nylon mesh bags (to hold sampling ports and sample containers)
- underwater quartz-halogen spotlight
- underwater 35mm camera and video camera
- 20 to 24 foot tow-boat with appropriate lines and anchor
- two man aluminum dive sled with Lexan bubble-shield to divert energy from flow velocity above and below divers laying prone in dive sled
- 14 to 18 foot backup boat for sample/diver retrieval
- dive flags on boat and attached to float above divers
- 1" x 30" stainless steel pipe used as probe to place PVC piezometer
- polyethylene syringe sample devices to extract pore water sample
- surber sampler and/or appropriate fine mesh net
- poly/glass containers for embryonic salmon
- manual post driver to install sample ports (backup tool)
- pneumatic air hammer to install sample ports

SUBPART:T 1910.421 (d)(6)

(6) Dive team assignments and physical fitness of dive team members:

The divers are Steve Hope/CH2M HILL-ERC and Frank Cobb/Dive Master Consultant. Mr. Hope will be responsible for selecting sample sites, inserting

sampling ports into the substrate, and for extracting pore water and embryonic salmon samples. He has past experience in working underwater with manual and pneumatic tools/equipment on U.S. Navy submarine hulls, and with fish/invertebrate collection equipment during specimen collections for exhibits at the New England Aquarium in Boston, MA. Mr. Cobb will pilot the dive sled. Mr. Hope and Mr. Cobb will be responsible for underwater photography/video. Mr. Cobb will assist Mr. Hope with the handling of sampling apparatus (i.e., supply of sampling ports, embryonic salmon containers). Mr. Cobb is a former Dive Master with the National Marine Fisheries Service. He built and tested the dive sled.

Doug Bowers is the ERC project team standby diver. Mr. Galbraith is the ERC project team backup diver. Messrs. Hope, Bowers, and Galbraith have recently received HEHF SCUBA fitness evaluations. The divers are all certified divers and have been trained in First Aid and Cardio Pulmonary Resuscitation (CPR). In the event of voice communication breakdown, the divers will use standard hand signals for underwater communication as developed by the U.S. Navy (Figure 1).

SUBPART:T 1910.421 (d)(7)

(7) Repetitive dive designation or residual inert gas status of dive team members:

Dives within the study area are not expected to exceed 25 feet which will result in No-Decompression Air Dives. Depths above 35 feet do not have a specific no-decompression limit. They are, however, restricted in that they only provide repetitive group designations for bottom times up to between 5 and 6 hours. These bottom times are considered the limitations of the No-Decompression Table (Table 1) and no field requirement for diving should extend beyond them. Dive times within the study area will not exceed 4 to 5 hours per day.

SUBPART:T 1910.421 (d)(8)

(8) Decompression and treatment procedures (including altitude corrections):

The study area dive depths and bottom times fall well within U.S. Navy No-Decompression Air Dive limits (Table 1), thus decompression and treatment procedures will not be required for this task. However, should the need for decompression arise, a decompression chamber is available at Wanapum Dam. Ambulance transport by the Hanford Fire Department is available. The divers will not fly, or otherwise travel to high altitudes, within 24 hours of diving to prevent any residual effects of excess nitrogen in their circulatory systems.

SUBPART:T 1910.421 (d)(9)

(9) Emergency procedures:

NOTE: The divers are experienced ocean/freshwater divers who are aware of the symptoms of the onset of narcosis, fatigue, and hypothermia. Narcosis will not be

a problem at the shallow dive depths, however, fatigue and hypothermia are potential problems. To offset the affects of fatigue, the divers will be assisted by onshore tenders to help them suit-up, conduct air tank changes, and enter and exit the river. The divers will also not exert themselves by attempting to swim into the river flow, nor attempt to drift back to the next sample (transect) site. The divers will ride the dive sled, leave the river and walk, or be transported to the next site. Hypothermia should not be a problem with the use of drysuits and insulated undergarments.

- o If project personnel on the riverbank or boat observe free-floating surface debris or boat traffic that could jeopardize diver safety, they will voice communicate with the divers so that the divers can take appropriate measures to avoid a hazard. If voice communication equipment fails or malfunctions, and/or if the boat operator/tender observes a potentially dangerous situation, they will bang on the boat hull four (4) times which will be a signal to the divers to exit the water.
- o Divers will be carrying knives to cut free from any ropes that may ensnare them. If a diver cannot reach the riverbank, the diver will signal the boat to be picked up by using an emergency whistle. In the remote chance that a diver becomes ensnared on a bottom object, the divers also have the option of quickly ditching weight belts and tanks (including hose assembly) which will result in rapid surfacing due to the resulting positive buoyancy.
- o If one diver observes that the other diver is incapacitated, he will voice communicate the problem to the boat tender, and he will dump the distressed divers weight belt (quick release buckle), take hold of the diver, surface, and instruct the boat operator and/or H&S personnel to assist in pulling the diver out of the river. The diver can also inflate the drysuit shell which will provide more than adequate buoyancy to keep a diver on the surface.
- o If a divers primary air supply regulator fails, the diver will switch to the backup regulator and surface to make repairs/replacement. If neither air supply regulator functions properly, both divers will buddy-breath and surface to make repairs.

SUBPART:T 1910.421 (e)

(e) Hazardous activities. To minimize hazards to the dive team, diving operations shall be coordinated with other activities in the vicinity which are likely to interfere with the diving operation.

SUBPART:T 1910.421 (f)
(f) Employee briefing.

SUBPART:T 1910.421 (f)(1)
(1) Dive team members shall be briefed on:

SUBPART:T 1910.421 (f)(1)(i)
(i) The tasks to be undertaken;

SUBPART:T 1910.421 (f)(1)(ii)
(ii) Safety procedures for the diving mode;

SUBPART:T 1910.421 (f)(1)(iii)
(iii) Any unusual hazards or environmental conditions likely to affect the safety of the diving operation; and

SUBPART:T 1910.421 (f)(1)(iv)
(iv) Any modifications to operating procedures necessitated by the specific diving operation.

SUBPART:T 1910.421 (f)(2)
(2) Prior to making individual dive team member assignments, the employer shall inquire into the dive team member's current state of physical fitness, and indicate to the dive team member the procedure for reporting physical problems or adverse physiological effects during and after the dive.

Attachment B

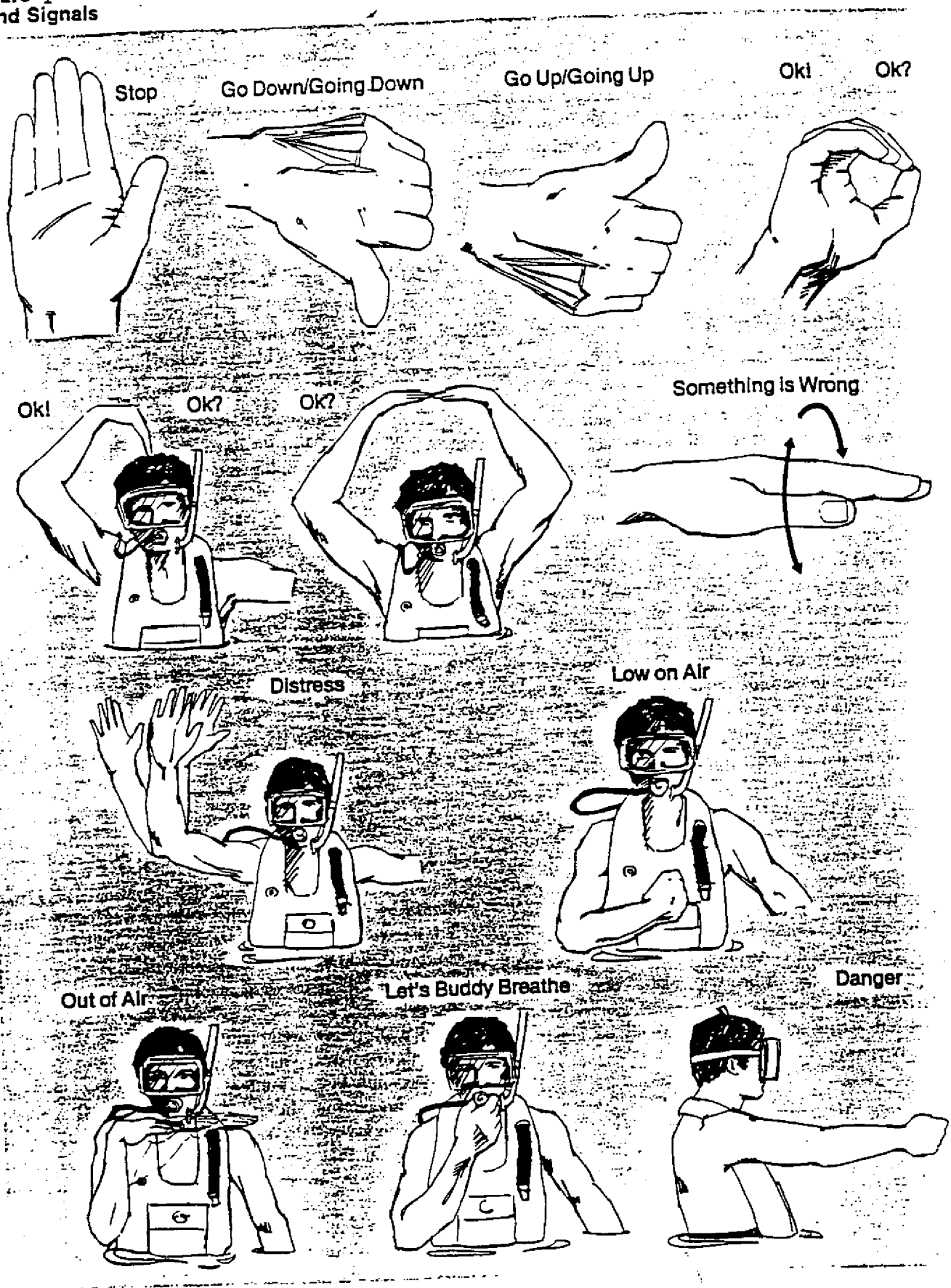
SUBPART:T 1910.420 Safe Practices and Checklist for Diving Operations

DIVING OPERATION CHECKLIST

(Equipment, personnel, systems check)

1. SCUBA tanks meet inspection requirements
2. SCUBA tanks filled, air hoses in good condition
3. Air pressure gauge operating
4. Buoyancy control system operational
5. Primary air supply operational
6. Backup regulator operational
7. Drysuit zippers and latex seals functional
8. Drysuit vent operational
9. Depth gauge zeroed before water entry
10. Mask, fins, and straps in good condition
11. Weight belt buckle operating properly
12. Underwater light operational
13. Cameras operational
14. Dive knife accessible
15. Dive flag(s)
16. Dive sled and towline ready/connected to boat
17. Field job book at dive site (SOW, permit, JHA, emergency phone nos., etc.)
18. Priest Rapids Dam operators notified of dive commencement (dam operator has site phone no.), concurrence required by dam/spillway operator(s) in the event of unanticipated dam/spillway release
19. First Aid kit at site
20. Diving Safety Manual at site
21. ERC Team H&S personnel ready
22. ERC Team sample technicians ready
23. ERC Team stand-by diver ready
24. Vehicle for emergency transport at dive site
25. Cellular phone at dive site (extra batteries)
26. Boat driver tender ready
27. Warm-up vehicle for divers next to dive site

Figure 1
Hand Signals



NOAA Diving Manua

Table 1
No-Decompression Limits and Repetitive Group Designation Table For No-Decompression Air Dives

Depth (feet)	No-decompression limits (min)	Group Designation														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
15		35	70	110	160	225	350									
25		20	35	55	75	100	125	160	195	245	315					
35	310	5	15	25	40	50	60	80	100	120	140	160	190	220	270	310
50	100		10	15	25	30	40	50	60	70	80	90	100			
70	50		5	10	15	20	30	35	40	45	50					
90	30		5	10	12	15	20	25	30							
110	20			5	10	13	15	20								
130	10			5	8	10										
150	5			5												
170	5				5											
190	5				5											

Courtesy U.S. Navy

Attachment C

ERC Single Point of Contact Schedule

011434

Name	Duty Date	Work Phone	Home Phone	Pager	Cellular
Tim Quinn	Nov 7-14	372-9257	582-7779	85-4076	539-2244
Vic Edens	Nov 14-21	372-9252	735-3553	85-7354	539-2244
Jeff Ard	Nov 21-28	372-9247	627-3252	85-4083	539-2244
Dave Parthree	Nov 28-Dec 5	372-9237	586-4365	85-2054	539-2244
Bobby Hobbs	Dec 5-12	372-9244	586-8536	85-2221	539-2244
Bruce Vesper	Dec 12-19	372-9218	627-3967	85-4077	539-2244
Tim Quinn	Dec 19-26*	372-9257	582-7779	85-4076	539-2244
Sandra Morris	Dec 26-Jan 3*	372-9501	943-5376	85-4082	539-2244
Vickie Cuneo	Jan 3-9	372-9225	627-0416	85-9508	539-2244
Vic Edens	Jan 9-16	372-9252	735-3553	85-7354	539-2244
Tom Rudolph	Jan 16-23	372-9239	627-3911	85-8966	539-2244
Bob Lichfield	Jan 23-30	372-9254	946-8610	85-8766	539-2244
Linda Duthie	Jan 30-Feb 6	372-9243	967-3347	85-8963	539-2244
Dan Thomas	Feb 6-13	372-9251	943-2465	85-4091	539-2244
Judy Vaughn	Feb 13-20	372-9438	946-9528		539-2244
Rick Hughes	Feb 20-27	372-9213	627-3322	85-7178	539-2244
Dale Gergely	Feb 27-Mar 6	372-9238	375-5075	N/A	539-2244

* Indicates a holiday falls on Monday of the duty assignment. Turnover will be the following work day.

If there are any changes to the above information or you trade the duty week, please notify Tim Quinn on 372-9257.